California Regional Water Quality Control Board

Central Valley Region

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DATE: 22 May 2006

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SUBJECT: RESPONSE TO REVIEW OF IRRIGATION SEASON SEMI-ANNUAL MONITORING REPORT – SOUTHERN SAN JOAQUIN VALLEY WATER QUALITY COALITION – KINGS RIVER SUB-WATERSHED

Staff Review

The Irrigation Season Semi-Annual Monitoring Report (SAMR) for the Southern San Joaquin Valley Water Quality Coalition's (SSJVWQC) Kings River Sub-watershed was submitted to the Sacramento Office of the Central Valley Regional Water Quality Control Board (Central Valley Water Board) on 28 February 2006. This report was submitted by the Kings River Sub-watershed to meet the requirements of Resolution R5-2003-0105 and the associated Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Conditional Waiver) adopted by the Central Valley Water Board on 11 July 2003.

Central Valley Water Board staff has reviewed the SAMR to evaluate the document for the required monitoring and reporting conditions detailed in Monitoring and Reporting Program Orders No. R5-2003-0826 and No. R5-2005-0833, the conditions set forth in the Kings River Sub-watershed's Monitoring and Reporting Program Plan (MRP Plan), the Quality Assurance Project Plan (QAPP), and to assess the quality of the data generated and the conclusions and recommendations presented.

The following SAMR review has been broken into three categories: 1) data quality, 2) data interpretation, and 3) compliance with the Conditional Waiver requirements.

DATA QUALITY

Item 1: A number of field and sampling related issues were identified during Central Valley Water Board staff's review of the SAMR. Instead of detailing each individual instance that a problem occurred, a decision was made to meet with representatives of the Kings River Sub-

watershed to discuss sampling/field related problems. A meeting was held on 3 May 2006 and the following issues were discussed and tentatively resolved at that time.

1. Field data sheets are incomplete and use different formats.
2. Chain of Custody (COC) documentation was insufficient and not legally sustainable.
3. Quality control (QC) samples were not rotated between sites and were identified with a particular site name (not blind).
4. Holding time was exceeded for all bacteria analysis.
5. Flow readings are not taken at the sampling sites.
6. Temperature of samples submitted to BC Laboratories exceeded acceptable levels for 22 February 2005 (5.8 degrees centigrade).

Item 2: A variety of laboratory quality control problems were encountered during the review of the SAMR. These problems included:

a) Matrix spike and matrix spike duplicates for the 22 February 2005 sampling event were not included in BC Laboratories analytical results.
b) Not all of the chromatograph peaks were identified for the 22 February 2005, 15 March 2005, and the 7 June 2005 toxaphene analyses.
c) BC Laboratories, Inc, continuing calibration verification (CCV), surrogate recovery and laboratory control sample water were not within established control limits for the 7 June 2005 sampling event and CCV values were also unacceptable for the 27 September 2005 sampling event. If the laboratory quality control is inadequate, for whatever reason, the samples must be reanalyzed if they are still within their required holding times. If the holding times have elapsed, then the location must be resampled and analyzed in order to provide the quality of data necessary to make informed program decisions.
d) Toxicity test summary sheets are not included in the SAMR for 7 June 2005, 19 July 2005, and the 22 September 2005 sampling events. Additionally, not all of the raw data sheets for toxicity were included for the 22 April 2005 and 7 June 2005 sampling events.

Item 3: Selenastrum toxicity data for 23 August 2005 includes results for ACOE Bridge. This site is not included in the list of monitoring sites on page 12 of the SMAR, nor is it shown on Figure 1-1. Additionally, ACOE Bridge is listed on the field data sheets and chain of custody for the 27 September 2005, but the sampling results are not included in the SAMR.

Item 4: The field data sheets for the 12 April 2005 sampling event state that the James Bypass was dry. However, the chain of custody lists the site and a time of sample collection. No analytical results for this site are included in the SAMR.

Item 5: The pesticide use section of the SAMR consists of information presented for the top five pesticides, for the top five crops produced in Kings, Fresno, and Tulare Counties. The list of materials used for each of the five crops is ranked based on number of pounds applied. No required pesticide use evaluation or database was included in the SAMR.

DATA INTERPRETATION

Item 6: Page 15 of the SAMR contains the statement: "*Results of this monitoring program indicate that the water quality of the Kings River below Pine Flat Dam meets Basin Plan objectives.*" While this statement is generally true, water quality issues were noted during staff's review and are detailed as follows:

a) Statistically significant toxicity to Selenastrum was detected at the Lemoore sampling site on: 15 March 2005, 12 April 2005, 7 June 2005, 19 July 2005, 23 August 2005, and 27 September 2005. The Manning Avenue sampling site exhibited statistically significant toxicity to Selenastrum on: 12 April 2005, 7 June 2005, 19 July 2005, 23 August 2005, and 27 September 2005. Additionally, the James Weir and ACOE Bridge sampling sites also exhibited statistically significant toxicity to Selenastrum (7 June 2005 and 23 August 2005, respectively). Potentially equally important is the fact that statistically significant toxicity to Selenastrum was not detected on: 22 February 2005, 15 March 2005, and 10 May 2005 at the Manning Avenue sampling site, and 10 May 2005 at the Lemoore sampling site.

   The reason for the persistent, low-level, widespread toxicity to Selenastrum remains unknown. Communication Reports dealing with the subject suggest a lack of carbonate hardness coupled with low alkalinity may be causing cell lysis. Another possibility suggested is that metals (copper and aluminum) may be responsible. However, required copies of the laboratory reports and/or documentation regarding the metals, hardness, or alkalinity issue have not been submitted to the Central Valley Water Board from either the Sub-watershed or Sierra Foothill Laboratories. No matter what the ultimate cause, or combination of causes is found to be, the Kings River Sub-watershed must undertake a program to address the issue and involve the Central Valley Water Board in the decision process.

b) University of California at Davis has conducted limited sampling of additional waterways within the Kings River Sub-watershed. Statistically significant toxicity has been detected at King Ditch located adjacent to Avenue 368 and Road 60 (Hyalella azteca), the Knestirc Ditch at Avenue 400 (Hyalella azteca), the Turner Ditch at 22nd Avenue (Hyalella azteca), The ditch on the south side of Utica Avenue (Hyalella azteca), and the West Reedley Ditch at East Adams Avenue (Selenastrum).

c) The region most likely to experience water quality problems is only being analyzed for 303d listed components. The monitoring point that is lowest in the system (Jackson Avenue) is sampled for Toxaphene and molybdenum only. Monthly irrigation drain data (electrical conductivity, temperature, and pH) presented by the Kings River Conservation District (KRCD) indicates a minimum of 12 sites discharge water that exceeds Basin Plan limits for EC and/or pH, back into the Kings River in the vicinity of the sampling point. The 23 September 2005 AMR review requested that the Sub-watershed begin the full suite of sampling including toxicity for the Jackson Avenue site based on this information. The Sub-watershed has yet to comply.

CONDITIONAL WAIVER COMPLIANCE

Certain aspects of the Conditional Waiver program may not have been completely addressed in the Watershed Evaluation, QAPP, and MRP Plan, and subsequently, were not included in the SAMR. While these documents have received prior approval by the Board, it is staff's position that additional information and/or actions should be undertaken at this time in order to fully comply with the **Conditional Waiver** program. These actions include: increasing the number of sampling points; the frequency of sampling; and actions taken to address water quality impacts.

Item 7: Monitoring and Reporting Program Order No. R5-2003-0105 (pages 8 and 10) states that the number of monitoring sites shall be based on acreages and watershed characteristics sufficient to allow for the calculation of load discharged for every waste parameter. Additionally, all major drainages must be part of baseline monitoring. At least 20% of the intermediate drainages must be monitored during the first year and the second 20% the second year, etc.

a) The Watershed Evaluation Report for the Kings River did not specify the major and intermediate drainages that exist within the Sub-watershed. Due to this discrepancy, a reliable calculation of the 20% of the intermediate drainages to be monitored each successive year cannot be made.

b) The Kings River Sub-watershed's sampling program consists of four monitoring sites, all of which are located on the main-stem water bodies. Despite Conditional Waiver requirements and Central Valley Water Boards requests, no additional monitoring points have been added, or are proposed to be added, to the Kings River Sub-watersheds monitoring program.

Item 8: The frequency of sampling set forth in the Conditional Waiver program is <u>once a month during the irrigation season</u> and twice during the storm season. The irrigation season is when farmers (individuals for whom the Waiver Program was developed) are utilizing either surface or ground water to pre-irrigate, irrigate, or post-irrigate fields. The irrigation season is not just when water districts, irrigation districts, or canal companies are making water deliveries. Additionally, a minimum of one sediment sample is required to be collected for both the storm-water and irrigation seasons.

Item 9: When toxicity is discovered, re-sampling is to be performed and samples are to be collected upstream to aid in determining the limits of toxicity. The Kings River Sub-watershed Communication Reports included in Section 3 of the SAMR do not contain any information regarding re-sampling or sampling upstream in response to the detected toxic event (statistically significant mortality to Selenastrum).

Item 10: In a letter dated 14 November 2005, the Kings River Sub-watershed responded to the Central Valley Water Boards correspondence (13 October 2005) regarding reduced algae growth results. As part of that response, the Sub-watershed stated that, *"Despite the lack of certainty on TIE triggers for the above referenced samples during the 2005 irrigation*

season, we attempted to respond in good faith by performing additional background sampling and low-level metals scans in response to recommendations from our laboratory. In addition to communication of these processes to you, we contacted each of the three County Ag Commissioners to discuss the results. A full evaluation of the seven sampling events that occurred during the 2005 irrigation season is necessary due to the fact that flow conditions change frequently on the Kings River below Pine Flat Dam and that metals objectives are not specified in the Tulare Lake Basin Plan. Results will be included in the Semi-Annual Monitoring Report to be submitted by December 31, 2005."

The Communication Reports section of the SAMR indicates that the statistically limited response in algal growth is discussed in Section 3 of the SAMR. However, Section 3 only includes a portion of the Communication Reports sent to the Central Valley Water Board and two "Draft" versions of reports for reduced algae growth results (missing documents include; the 8 July 2005 letter, second of two letters sent on 12 August 2005, the 31 October 2005 letter, and the 14 November 2005 letter). No metals analyses, background sampling results, detailed evaluation of the seven sampling events with regards to Selenastrum toxicity, or information generated from the meeting with County Ag Commissioners has been included in the Kings River Sub-watersheds SAMR.